



CITY COUNCIL STAFF REPORT

DATE: March 6, 2013

CONSENT AGENDA

SUBJECT: APPROVAL OF PLANS AND SPECIFICATIONS FOR AIRPORT TERMINAL APRON AND TAXIWAY "G" PAVEMENT REHABILITATION PROJECT AND AUTHORIZATION TO BID THE AIP GRANT No. 3-06-0181-50 (CP 13-16).

FROM: David H. Ready, City Manager

BY: AIRPORT DEPARTMENT

SUMMARY

This action would approve the Plans and Specifications and allow the bid process to begin for the Airport's Terminal Apron and Taxiway G Pavement Rehabilitation Project.

RECOMMENDATION:

1. Approve the plans and specifications for the Airport Terminal Apron and Taxiway G Project for Airport Improvement Project AIP No. 3-06-0181-50 and authorize staff to advertise for bids (CP 13-16).
2. Authorize the City Manager to advertise and solicit bids.

STAFF ANALYSIS

On September 5, 2012 City Council approved the FAA Grant No. 3-06-0181-49 for the Design Phase of the Airport's Terminal Apron and Taxiway G pavement rehabilitation project. The design is complete and it is ready to proceed with the bid phase of the project.

This project is 90% funded by FAA - AIP Entitlement funds with the grant being issued upon completion of the bid process. At that time, the appropriate contracts will be returned to Council for final approval.

The project's purpose is to replace and rehabilitate old asphalt apron and taxi lanes surrounding the two airport concourses and all of taxiway "G". The Federal Aviation Administration puts considerable emphasis and expectations on airports to maintain all airside pavements and provides grant funding to accomplish these improvements.

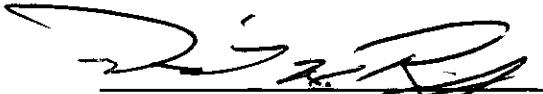
The Airport Commission unanimously approved this project in the airport's 2012/13 capital improvement program.

FISCAL IMPACT

The project range is estimated to cost approximately \$9.5 million dollars and will be funded 90% by an FAA Grant No. 3-06-0181-50. In FY 12/13 \$9,951,000 has been budgeted for AIP 50 in accounts 416-6601-56149 and 416-6401-056149. Two bid alternates are incorporated into the project as assurance for funding thresholds.



Thomas Nolan,
Executive Director, Airport



David H. Ready, City Manager

cc: Basis of Design Summary



Palm Springs International Airport (PSP)

Basis of Design Summary

A.I.P. No. 3-06-0181-049-2012 (Design)

A.I.P. No. 3-06-0181-050-2013 (Construction)

Terminal Apron and Taxiway 'G' Rehabilitation Project

**Palm Springs International Airport
3400 E Tahquitz Canyon Way
Palm Springs, California**

February 27, 2013

Parsons Brinckerhoff, Inc.
451 E. Vanderbilt Way
San Bernardino, CA
92408
PH (909) 888-1106

1.0 Guidance Documents:

- **AC 150/5370-11B** - Use of Nondestructive Testing in the Evaluation of Airport Pavements (9/30/2011)
- **AC 150/5340-30F** - Design and Installation Details for Airport Visual Aids (9/29/2011)
- **AC 150/5345-56B** - Specification for L-890 Airport Lighting Control and Monitoring System (ALCMS) (9/29/2011)
- **AC 150/5370-2F** - Operational Safety on Airports During Construction (9/29/2011)
- **AC 150/5345-39D** - Specification for L-853, Runway and Taxiway Retroreflective Markers (9/26/2011)
- **AC 150/5335-5B** - Standardized Method of Reporting Airport Pavement Strength – PCN (8/26/2011)
- **AC 150/5345-3G** - Specification for L-821, Panels for the Control of Airport Lighting (9/29/2010)
- **AC 150/5345-10G** - Specification for Constant Current Regulators and Regulator Monitors (9/29/2010)
- **AC 150/5345-44J** - Specification for Runway and Taxiway Signs (9/29/2010)
- **AC 150/5340-1K** - Standards for Airport Markings (9/3/2010)
- **AC 150/5340-18F** - Standards for Airport Sign Systems (8/16/2010)
- **AC 150/5210-5D** - Painting, Marking, and Lighting of Vehicles Used on an Airport (4/1/2010)
- **AC 150/5300-9B** - Predesign, Prebid, and Preconstruction Conferences for Airport Grant Projects (9/30/2009)
- **AC 150/5320-6E** - Airport Pavement Design and Evaluation (9/30/2009)
- **AC 150/5345-46D** - Specification for Runway and Taxiway Light Fixtures (5/19/2009)
- **AC 150/5220-23** - Frangible Connections (4/27/2009)
- **AC 150/5300-15A** - Use Of Value Engineering For Engineering And Design Of Airport Grant Projects (9/30/2008)
- **AC 150/5370-6D** - Construction Progress and Inspection Report - Airport Improvement Program (AIP) (9/29/2008)
- **AC 150/5360-12E** - Airport Signing and Graphics (9/18/2008)
- **AC 150/5200-28D** - Notices to Airmen (NOTAMS) for Airport Operators (1/28/2008)
- **AC 150/5370-12A** - Quality Control of Construction for Airport Grant Projects (9/29/2007)
- **AC 150/5370-16** - Rapid Construction of Rigid (Portland Cement Concrete) Airfield Pavements (9/28/2007)

- **AC 150/5380-6B** - Guidelines and Procedures for Maintenance of Airport Pavements (9/28/2007)
- **AC 150/5200-33B** - Hazardous Wildlife Attractants On or Near Airports (8/28/2007)
- **AC 150/5345-49C** - Specification L-854, Radio Control Equipment (6/27/2007)
- **AC 150/5345-42F** - Specification for Airport Light Bases, Transformer Housings, Junction Boxes, and Accessories (10/17/2006)
- **AC 150/5320-5C** - Surface Drainage Design (9/29/2006)
- **AC 150/5345-43F** - Specification for Obstruction Lighting Equipment (9/12/2006)
- **AC 150/5380-7A** - Airport Pavement Management Program (9/1/2006)
- **AC 150/5230-4A** - Aircraft Fuel Storage, Handling, and Dispensing on Airports (6/18/2004)
- **AC 150/5345-7E** - Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits (8/2/2001)
- **AC 150/5370-14A** - Hot Mix Asphalt Paving Handbook (7/24/2001)
- **AC 150/5300-13A** - Airport Design (9/28/2012)
- **FAARFIELD** – FAA Rigid and Flexible Iterative Elastic Layered Design, v. 1.305

2.0 Project Requirements

This project is to provide 100% PS+E for the full-depth replacement of the terminal apron and grind/overlay of Taxiway ‘G’ at Palm Springs International Airport in accordance with FAA regulations, local regulations, and the Airport Pavement Maintenance and Management Plan. Design must be completed and the project must be awarded so that construction can take place during the slow season in summer 2013. The construction must be phased so that each terminal, ticketing luggage and pick-up luggage are useable at all times. Construction must be complete by September 30, 2013 to allow for full use of the terminals, baggage and apron parking spaces.

The project will include full depth asphalt apron pavement replacement, concrete apron infill, and existing concrete apron panel replacement where some panels have failed. Additionally, the project will provide lighting, signage and pavement marking upgrades. This project will require coordination with the FAA, Airport Ops, and Airlines to ensure safety and functionality of the apron during the project.

3.0 General Objective

This Basis of Design (BOD) will provide the complete project design concept for the PSP Terminal Apron Rehabilitation Project A.I.P. No. 3-06-0181-049-2012. It will provide a narrative presentation of facts about the project scope that will demonstrate that sound engineering decisions were made in the development of the construction documents and specifications.

The Geotechnical Investigation will be summarized for the project as it relates to the apron design. It will include a description of the geotechnical investigation program and recommendations for site preparation, grading and pavement design. The Final Geotechnical and Final Hydrology/Hydraulics Report will be provided in the Appendicies.

Since there are no structures in this package, a structural narrative is not included.

The apron rehabilitation project is reconstructing in the Secure Identification Area (SIDA) portion of the apron. This means all personnel who are required to be on the apron long-term must undergo special training by the Airport and acquire a SIDA badge. Additional training is required for driving/escort privileges. If personnel are only visiting the site temporarily, a SIDA badged employee may be able to escort them. Contractors will also need to acquire a SIDA badge once the project is awarded. The contractor's yard will be outside of the airport perimeter fence, so the construction yard must be secured at night and the construction entrance must be manned during operations when the gate is unlocked.

4.0 Existing Conditions

Palm Springs International Airport (PSP) is located in the north east portion of the City of Palm Springs in Riverside County, California within the Coachella Valley. The Palm Springs Airport Terminal Rehabilitation Project and Taxiway 'G' Rehabilitation project is located on the southwest side of the airfield. The project site is at an approximate average elevation of 415. There is typical city development (residential and commercial) in the surrounding areas. Palm Springs International Airport experiences spikes in aircraft traffic during the winter season and has very little commercial aircraft traffic in the summer months.

The existing asphalt apron and taxilanes around the main terminal and terminal expansion area are in poor condition. The pavement has been identified in the Pavement Maintenance and Management Plan (PMMP) as having a PCI (Pavement Condition Index) rating from "Very Poor" to "Poor" (See Section 4.1) and the PMMP suggests removal and replacement of the AC section. Based on a site walk by Parsons Brinckerhoff, the PCI and recommendation for removal are appropriate. Most of the PCC apron at both concourses is in satisfactory condition, but failing joint sealant was noticed on many panels. Some PCC panels on the Bono Concourse apron at the PCC/AC edge are cracked, creating a potential FOD issue, and will be replaced as part of this project. Asphalt shoulders around the apron will be left in place because they are in good condition. This will protect the lighting and signage circuits. The shoulders on taxiway 'G', where they exist, are in poor condition and are propagating their failure into the structural pavement.

The surrounding landscape is relatively flat desert, falling southeast at approximately 1%. Low growing vegetation exists off pavement on the airfield side along with imported gravel to control drift sand.

The only significant concentration of utilities in the project footprint is on the air side of the terminal at baggage make-up. This area has water, sewer, gas, storm drain, communications and underground power, with many at-grade utility vaults. In this area, special attention will be required to match existing grade or to provide for the reconstruction or adjustment of the structure. The rest of the apron and taxiway G only have a couple crossings of airfield lighting circuits and a sewer line leading southeast from the Bono concourse. No grade changes are expected in these areas so only due care is required during construction.



5.0 Geotechnical

The Project Geotechnical Investigation was performed by RMA on November 26-28, 2012. RMA performed 14 borings, 10 on the apron and 4 on taxiway 'G', to verify existing conditions. The geotechnical investigation revealed the underlying soils are extremely uniform with poorly graded sand or silty sand (USCS SM or SP-SM) to a depth of 10-feet. The existing asphalt pavements in the apron vary from 9"-10" AC on 3"-7" of aggregate base. The taxiway 'G' pavements are 9"-10" AC on native soils.

6.0 Demolition

No structures will be demolished as a part of the Terminal Apron Rehabilitation Project. The existing apron and taxiways consist of asphalt concrete with asphalt concrete shoulders. The entire structural asphalt section, including base will be removed. The asphalt shoulders will be protected in place, with possibly a grind and overlay performed for surface treatment. Some concrete panels at the edge of the existing Bono Concourse apron have developed working cracks and will be removed and replaced with reinforced panels. The existing PCC joint sealant on both aprons also requires replacement. During pavement demolition and regrading in the baggage make-up area, a storm drain inlet and several electrical and communications vaults will have to be raised to the proposed grades. To maintain functionality, the structure will be left in place with only the lid/grate raised to grade. All other utility vaults in the active taxiway areas will not require a grade adjustment so there is no need to reconstruct them. All utility piping and electrical duct banks shall be protected in place. The existing elevated LED taxiway edge lights will be protected in place. Flush mount taxiway edge lights on the south side of the apron will be removed and replaced with new flush mount LED taxiway edge lights. The existing elevated taxiway direction signs are in compliance with current standards, except the ←A1 sign on the south side of the apron by the regional concourse. This sign will be salvaged and relocated.

Taxiway 'G' consists of asphalt concrete with asphalt shoulders, no shoulders, or adjacent asphalt apron. The structural section will be ground 4" to remove the weathered pavement surface course. A full depth removal around the crossing flow line will be required to address the grade change and create a PCC flow line. The failing shoulders will be removed to full depth. Where taxiway 'G' ties in to the existing apron, a 4" grind will be made to control grades.

Non-standard taxiway centerlines that lead in to the reconstructed areas at taxiway 'G' and along taxiway 'W' to the terminal apron will be obliterated and repainted to conform to current standards.

7.0 Site Work

Two or three asphalt pavement sections and one concrete pavement section will be designed according to the FAA approved pavement design software called FAARFIELD.

The thickest asphalt section will be designed for heavy aircraft traffic that weighs over 100,000-pounds and will be utilized on all taxi lanes and apron areas that feed the Bono concourse. This area will require a stabilized base and P-401 asphalt mix according to AC 150/5320-6E. The asphalt pavements that exclusively serve aircraft lighter than 100,000-pound require a thinner section than the commercial aircraft area. These areas will not require a stabilized base, but will require a P-401 asphalt mix. Asphalt pavements that will not see aircraft traffic will be designed for H-20 loading and will utilize P-403 asphalt mix on aggregate base. A small concrete infill between the two concourse aprons will be provided because the excessive turning and tugging movements in this area tend to tear up asphalt pavement.

Airfield marking will be in accordance with AC 150/5340-1k. Striping will be required where any new pavements are being placed and/or striping gets obliterated during construction. At a minimum, taxiway edge, centerline, and apron lead-in stripes will be provided. Surface painted gate designation signs will be replaced where removed for construction and repainted on the remaining apron. Three or four aircraft parking areas will be striped as well. No further PCC apron marking, like nose wheel parking locations, engine proximity, or roadway striping will be done in this project. Additional striping of the approaches to the gates will also be required.

Taxiway edge lighting will be replaced where it is infeasible to protect them in place or where edge lights are non-LED. The south side of the apron, a projection of Taxiway A1, is the only place identified where incandescent flush mounted taxiway edge lights will be removed and replaced for the apron project. Taxiway 'G' will not add edge lights along the length or adjust the lights at the taxiway 'W' intersection.

The taxiway ←A1 sign on the south side of the apron will be relocated to align with the left side of the taxi lane as per the preferred location in AC 150/5340-18F. Taxiway 'G' will remove the surface painted taxiway identifier signs and install a new elevated taxiway identifier sign.

7.1 Pavement Design

Palm Springs International Airport is a C-III airport. Per Advisory Circular design standards, this means that all taxiways are only required to be 50-feet in width. However, taxiways 'W' and 'A1' are 75-feet wide, per Group IV standards. Terminal apron taxi lanes, are striped at a 37.5-foot half-width, like the taxiways. This seems appropriate as PSP occasionally sees Group IV aircraft at the airport. Therefore, width and object free areas will be held consistent with group IV standards and taxiway/lane separation will be per Taxiway Design Group 5, the smallest 75' wide taxiway requirement. The taxi lane area to gates 18-20 on the south side of the regional concourse will be designed per Taxiway Design Group 3/4 but will show a 37.5-foot half width to keep a consistent edge with the projection of taxiway A1. This taxi lane will be realigned to be parallel to the existing wall to leave clearance for the perimeter road. Taxiway 'G' will be designed according to ADG III and Taxiway Design Group 3/4. The overnight/diverted parking area (blue stripe) by the regional concourse will be set off the taxi lane by 93-feet, the ADG III Taxiway Centerline to Fixed/Moveable object requirement. This is sufficient to pass an A320-200 with 37-feet of wingtip clearance while 34-feet are required for a taxiway and 23-feet are required for a taxi lane. This slight oversizing provides an added buffer if the parked aircraft extends its nose past the blue line.

7.2 Airfield Lighting

New taxiway edge lights and conduit/conductor will be installed for this project along the south side of the apron along the realigned taxi lane by the regional concourse. Semi-flush edge lights will be Light-Emitting-Diode (LED) to match the existing LED elevated taxiway edge lights. Replacement lights will be located 10' from apron/taxi lane edge to mimic the existing condition in conformance with AC 150/5340-30G.

7.3 Grading

The proposed grades will closely reflect the existing condition because of perimeter conditions, but every effort will be made to keep the apron at 0.5% to 1.5% slope in any direction. The largest grade changes on the project occur behind the ticketing/baggage make-up area. A retaining wall 1-foot or less in height will be required to eliminate steep slopes and steps at building doors. The east side of baggage make-up area will require moderate fills of one to 2 feet to reduce existing grades that exceed 8% in the baggage cart areas. Final grades will be closer to 3%. One electrical vault, 2 communications vaults, one storm drain inlet and several valve cans will be raised to meet design grades. No utility lowering will occur because pavements are not being lowered. Finished surface at the building face will be maintained because built-in roof drains outlet to grade along the entire face. Baggage cart turning radii will be analyzed and operations personnel will be consulted so that the revised grading leaves a usable space for baggage handling.